

ARC920010086US1
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In the Drawings:

None

ARC92001008GUS1
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This amendment is in response to the Examiner's Office Action dated 5/16/2005.

Applicants are appreciative for the recognized allowable subject matter. This amendment should obviate outstanding issues and make the remaining claims allowable. Reconsideration of this application is respectfully requested in view of the foregoing amendment and the remarks that follow.

STATUS OF CLAIMS

Claims 1-10 and 17-24 are pending.

Claims 11-16 have been cancelled because they are drawn to a non-elected species.

Claims 1-4, 6, 10, 18 and 21-24 are allowed or have been indicated as containing allowable subject matter.

Claims 17 and 20 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claims 17 and 20 stand additionally rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and claim the subject matter which Applicant regards as the invention.

Claims 5, 8, 9, 17 and 20 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Anderson et al. (USP 6873290 B2).

Claims 7 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anderson in view of Horvitz (US Pub. No. 2002/0087649).

ARC920010086US1
10/042,366OVERVIEW OF CLAIMED INVENTION

The present invention provides for a system and method for analyzing the history of previous location reports received from a tracked entity and uses the history to estimate the relevance of future reports over time. This is accomplished by associating a computed expiration time for each report. For instance, a positioning module mounted inside a vehicle stops sending location reports in the morning when the driver arrives at work. The last report received from the vehicle (reporting the position somewhere near the work location) will have an expiration time of about 8 hours, or approximately the time the person spends at work. Similarly, when the driver arrives at home the last report will be associated with an expiration time of about 10 hours, or approximately the time spent at home every night.

This expiration time is used by a tracking application to estimate the degradation in relevance of a location report over time. A newly received location report has a high temporal relevance since it most accurately reflects the location of a tracked entity (device and user) at that point in time. However, as time passes, and if no further location reports are received, the last received location report becomes less relevant since it becomes increasingly likely that the tracked entity is no longer at the location indicated in that location report. Eventually, the expiration time passes and the location report has little relevance or is not relevant at all. The expiration time value is a threshold that controls the shape of the relevance degradation curve of a location report. Such an analysis of location reports can be utilized for increasing the confidence of the location of a tracked entity and for triggering a tracking application upon exceeding an identified expiration time.

ARC920010086051
10/042,366REJECTIONS UNDER 35 U.S.C. § 101

Claims 17 and 20 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Minor amendments have been made to claims 17 and 20, adding no new subject matter, to overcome the rejection under 35 U.S.C. § 101. It is therefore respectfully requested that the rejection be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 112

Claims 17 and 20 stand additionally rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and claim the subject matter which Applicant regards as the invention. Minor amendments have been made to claims 17 and 20, as per the Examiner's suggestions, to overcome the rejection under 35 U.S.C. § 112. It is therefore respectfully requested that the rejection be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 102(e)

Claims 5, 8, 9, 17 and 20 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Anderson et al. (USP 6873290 B2). In order to be properly rejected under §102, the cited reference must provide each and every claim element of a system/apparatus claim, or each and every step of a method claim. Applicants contend that the Anderson et al. reference (hereafter, "Anderson") either explicitly or implicitly fails to provide for many of the claim limitations as required by claims 5, 8, 9, 17 and 20.

The Anderson reference appears to have been cited for its discussion of providing varying qualities of location estimates. The method as taught by the Anderson reference produces two location estimates, a first, low-quality estimate and a second, higher-quality estimate. The Anderson reference teaches multiple pass location processing based on the identity of the first

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location application. The Examiner cites Anderson as providing for creating partitions for location reports corresponding to location positioning modules (e.g., GPS satellites); identifying via pattern analysis an expiration time associated with each partition; and using these identified expiration times to place a higher amount of confidence in corresponding location reports.

With regard to claims 5 and 9, the Examiner has cited column 6, lines 32-42 of the Anderson reference as providing for the creation of optimal partitions for location reports corresponding to each of said location positioning modules. It is respectfully pointed out that the referenced section makes no mention of a partition, and furthermore, no mention of a partition corresponding to a location positioning module. The sections of the Anderson referenced by the Examiner merely mention scheduling of scarce resources, and at that, for the purpose of increasing the capacity of the WLS. The present invention provides for geographically partitioned areas for the purpose of creating correspondences between a location report and a location positioning module, whereas the Anderson reference merely speaks to *time-scheduling resources to increase capacity*. The Examiner also cites column 16, lines 45-67 as providing for an expiration time identified via pattern analysis. A closer reading of the referenced section provides for the use of a narrowband receiver and the advantages of random tuning. Also mentioned in the Anderson reference is an automatic sequential tuning mode which provides a higher location processing throughput. This is clearly different from the present invention in that the inventive system and method are directed to the reports that are provided the location positioning modules and optimally using these reports in a manner that increases confidence in a location estimate. By contrast, the Anderson reference speaks primarily to optimizing a receiver, and optimizing the manner in which *location-gathering devices gather location information*. Lastly, with regards to independent claims 5 and 9, the Examiner has cited column 5, lines 54-67 and column 6, lines 1-16 as providing for utilizing said identified expiration times corresponding

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to each of said location positioning modules to identify an expiration time and placing increased confidence in location reports corresponding to said identified expiration time. Because the Anderson reference, as previously discussed, does not teach identifying expiration times, it is impossible that the Anderson reference would teach utilizing expiration times.

With regards to claims 8 and 20, the Examiner cites column 29, lines 39-55 and column 31, lines 28-54 as providing for said method requiring a reduced amount of communication bandwidth by inhibiting transmission during identified expiration times. In contrast, the sections referenced by the Examiner speak to triggering using "normal" location processing. This is different from actually inhibiting transmission as in the present invention in that the expiration times are used to determine when fresh IS NOT needed. Conversely, the Anderson reference speaks to triggering location processing *when new information IS needed*; this is clearly not the same as the present invention.

With regard to independent claim 17, the Examiner has pointed to column 37, lines 16-55 as providing for creating N optimal partitions for each of said identified clusters. However, a closer reading of the referenced sections provide for breaking up a given geographic region into cells for the purposes of *dynamically routing a location record*. In contrast, the present invention bases these N optimal partitions on the identified clusters associated with the tracked entity, NOT the number of bits available in a routing table, NOR the size of the geographic area. Furthermore, the N optimal partitions that have been created are used to identify associated optimal expiration times, via a time interval analysis. The Anderson reference teaches nor suggests partitioning an area based on identified clusters nor makes any mention of a time interval analysis.

The Examiner has cited column 40, lines 18-25 as providing for identifying an optimal expiration time associated with each of said partitions via time interval analysis. However, a

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closer reading of the referenced section makes no mention of time, it suggests when a second wireless location system checks a signal of interest table for a trigger. This is clearly different from the system and method of the present invention. Also cited as providing for incrementing said counter to point to next of said tracked entities are column 40, lines 60-67 and column 41, lines 1-14. However, these sections indicate an expiration timestamp to a "roamer" entry; again the Anderson reference does not come by this expiration time via time interval analysis, the expiration timestamp is solely for the purpose of determining the last transmission. In fact, the Anderson reference teaches away from the present invention in that the expiration timestamp is simply calculated from the most recent transmission plus a *predetermined time interval*. The crux of the present invention lies in the fact that an optimal expiration time is NOT predetermined; it is identified through the observation of the behavior of the tracked entity. Furthermore, Anderson makes no mention of repeating the process for a plurality of tracked entities. In further contrast, the present invention utilizes the identified optimal expiration time as a means to inhibit unnecessary transmissions; the Anderson reference utilizes the expiration time to determine whether a roamer entry is automatically deleted.

Lastly, the Examiner cites column 15, lines 11-64; column 29, lines 23-55; and column 42, lines 22-43 as providing for increasing confidence information reported by each of said tracked entities based upon said identified expiration times. However, a closer reading of these sections indicates the "blank and burst" transmission of the Wireless Location system disclosed in Anderson; no mention of a confidence in location report is made.

REJECTIONS UNDER 35 U.S.C. § 103(a)

Claims 7 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anderson et al. in view of Horvitz (US Pub. No. 2002/0087649). To establish a *prima facie* case

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of obviousness under 35 U.S.C. § 103, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

With regards to claims 7 and 9, the Examiner cites paragraphs 0318-0320 of the Horvitz reference as providing for creating N optimal partitions for location reports corresponding to each of said location positioning modules, identifying via pattern analysis an expiration time associated with each of said created partitions, and utilizing said identified expiration times corresponding to each of said location positioning modules to identify an expiration time and placing increased confidence in location reports corresponding to said identified expiration time. However, a closer reading of the referenced sections provides for tracking entities via simple object access protocol (SOAP) - this is clearly different from the system and method of the present invention. The present invention provides for an intelligent method to use location reports provided by tracked entities; the intelligence is found in analyzing the behavior of a tracked entity to come up with an expiration time for which a location report provided by a tracked entity is likely to remain fresh. Thus, the present invention also provides for not only efficiently utilizing the capacity of a location positioning system but also for intelligently utilizing available information.

Hence, applicants contend that the pending claims cannot be anticipated (or rendered obvious) in view of the Anderson et al. reference or the Horvitz reference. Hence, Applicants respectfully request the examiner to withdraw the rejections with respect to the pending claims.

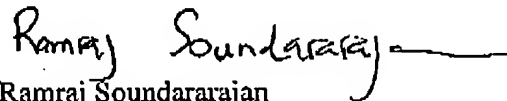
ARC920010086US1
10/042,366SUMMARY

As has been detailed above, none of the references, cited or applied, provide for the specific claimed details of Applicants' presently claimed invention, nor renders them obvious. It is believed that this case is in condition for allowance and reconsideration thereof and early issuance is respectfully requested.

As this amendment has been timely filed within the set period of response, no petition for extension of time or associated fee is required. However, the Commissioner is hereby authorized to charge any deficiencies in the fees provided to Deposit Account No. 12-0010.

If it is felt that an interview would expedite prosecution of this application, please do not hesitate to contact applicants' representative at the below number.

Respectfully submitted,



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August 9, 2005